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Trombicula autumnalis Shaw and its Association with Seasonal Pruritus in the Dog

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There are many zoological records of the occurrence of the Harvest Mite (*Trombicula autumnalis*) on domestic and wild animals and some references in veterinary literature to its causing localised pruritus. The mite does not appear, however, to be recognised as a common cause of generalised (seasonal) pruritus in the dog and the purpose of the present paper is to emphasise this possibility. The writer has observed cases of general pruritus in the dog occurring regularly in July to September during the past ten years and associated with the occurrence of *T. autumnalis* in the animals affected. The cases have been observed in several different counties including Kent, Herefordshire, Monmouth and Staffordshire.

T. autumnalis is the larval form of an unknown adult; the nymphal form has, however, been hatched out from engorged larvae by several writers including Keay (1937) who also recorded the widespread distribution of the mite in this country. It is probable that the larval stage is the only one which is parasitic in the mite's life cycle. There is as yet no definite knowledge as to how the mite survives the winter, as free living adults or as parasitic mites. Keay (loc. cit.) appears to favour the latter view as she had found mites on the ears of rabbits and voles during the winter months.

The mites—a figure of which is published in Hirst's "Arachnida Injurious to Man" (1917) but, strangely enough, not in his "Mites Injurious to Domestic Animals" (1922)—are hairy mites with six legs of seven segments each, terminating in three hooks by which they may be distinguished from the Sarcoptiform acari. Many of the hairs are plumose and a deep red pigmented spot can often be seen on each side near the bases of the second pair of legs (v. Fig. 3).

In an unfed state the larval mites measure from 0·18 to 0·24 mm. in length by 0·10 to 0·18 mm. in width (average: 0·21 × 0·14 mm.) and are deep red in colour, but when engorged are pale salmon to straw coloured and measure from 0·37 to 0·65 × 0·2 to 0·375 mm. (average 0·45 × 0·27 mm.).

Keay and others have noticed the particular association of the mite with calcareous soils, down, heath and rough shrubby woodland. It has also been frequently reported from among the gooseberry bushes and black and red currants. All these observations have been confirmed by the present writer who is subject to the bites of this mite—responding by the formation of heat lumps in the centre of which the mite may sometimes be detected. (He is unaffected by the bites of the larval indigenous ticks.) It does, however, occur in many areas not predominantly calcareous and has so frequently been met in the cornfields at harvest time that its common name is the Harvest Bug or Harvester.

Warburton (1928) reviewed the state of knowledge of the Trombicula mites up to 1928 and quoted 20 references to the mite in scientific literature. Warburton disagrees with what he calls "the random statements of various authors as to certain crops—beans, gooseberries, etc.—being especially affected by the mites." The present writer is, however, in agreement with "the random statements" as he himself has frequently "collected" the mites (with irritating results) from among the gooseberries and currants.

Trombidiid mites have been recorded from most parts of the world and in Malaya, Japan and other Far Eastern states they have been incriminated as the vectors of acute febrile infections (pseudotyphus) due to Rickettsia.

A number of species are figured in Patton and Evans's (1929) textbook on Entomology.

Pillers (1934) recorded an unusual prevalence of the mite during the autumn of 1934, specimens having been received from the anal region of a wild rabbit, the head and ears of cats, the face and heels of horses, feet, legs and skin of dogs and from man.

Fraser (1938) suggests that *T. autumnalis* may be the cause of "Heel-bug" in racehorses.

FIG. 1.—Magnification × 150. Unfed larva of *Trombicula autumnalis*—from a dog.

FIG. 2.—Magnification × 100. Engorged larva of *Trombicula autumnalis*—from a dog.

FIG. 3.—Magnification × 100. Engorged larva of *Trombicula autumnalis*—from a dog. The deeply pigmented (red) spots can be seen in this preparation at the base of the second legs.

NOTE.—Allowing for the difference in the magnification of the engorged and unfed specimens it can be seen what a great difference in size exists between the unfed and replete states of the larval mites.

In the first few cases seen by the present writer dogs were affected with irritation of the feet which was found to be due to clusters of the harvest mite—these appear as minute deep scarlet red or orange to pale yellow spots according to the state of engorgement of the mites. These mites were found most frequently to be clustered together in the fossae or culs-de-sac at the upper limit of the anterior (or dorsal) surface of the interdigital spaces. This habitat of the mites appears to be a predilection site as well also—as has been recorded by others (Keay—loc. cit., Patton and Evans, etc.)—as the edges of the eyelids and the tips of the ears and, in man, where there is pressure from clothing such as elastic garters, etc. It would appear that the mites may frequently travel as far as they can and then settle down to suck the host's blood or tissue juices.

Other mites have well-defined sites of predilection such as Henry's zone (the small double pocket in the posterior border of the ear) in the case of the Sarcoptes in dogs (Mallet, 1931), and during latency in psoroptic scabies in sheep in the infra-orbital fossae and inguinal folds (Downing, 1936) and this observation of the concentration of the Trombicula mites in the interdigital fossae appears to be significant and of value from a diagnostic viewpoint.

As already stated, in the first few cases the feet were the obvious sites of irritation due to the mites but the dogs also showed signs of general pruritus and it was decided to search subsequent cases of general pruritus in dogs, for the mites. In a number of cases these were found in the fossae in the interdigital spaces and no mites were observed on the body—this is only to be expected, as isolated and scattered mites would almost certainly escape detection. It has not been possible to observe many cases in any one year as the writer is not in general practice but pruritus has been observed regularly every year at the same season in a limited number of dogs (including the writer's own dogs), all of which harboured *Trombicula*, which were detected by searching the interdigital fossae. Careful search with the unaided sight, if good, and in a good natural light usually readily reveals the mites if they are present, and they may be picked up on the point of a sharp needle or a cataract knife and placed on a slide. They adhere better to the needle if it is moistened with a little glycerine.

Fraser's reasonable suggestion that Trombicula is the cause of "Heel-bug" in racehorses may be supported by the fact that, as far as can be ascertained from the literature, the heels are the predilection site for the mites in horses.

Two typical cases may be worth recording :—

I.—The subject was an 18-months-old Cairn terrier brought into the surgery in Monmouthshire in September, 1934, for irritation of the feet. The main symptoms were constant licking of the upper or anterior surface of the feet—especially the fore feet. The owner had suspected that the nails were too long, but these were normal, and examination of the interdigital spaces showed the presence of minute salmon-coloured mites which were just visible to the naked eye. The visible lesions were small scurfy areas or tiny scabs and reddening at the top of the interdigital spaces of each fore foot. In the hind feet the fossae were not so marked and the mites were therefore not so restricted in their distribution and so were less concentrated in numbers.

The mites appeared to creep into hair follicles—several being seen in the depression of hair follicles and also under the scales of scurf which were formed. Removal of the scales caused slight bleeding.

II.—The subject of another case was a mongrel dog brought into the surgery of a Herefordshire veterinarian in September, 1940, when the writer was present. The previous evening the writer's views had been expressed on the relation of *Trombicula* to general pruritus in the dog but the practising veterinary surgeon appeared unconvinced. The case was one of general pruritus of no obvious cause and permission was given for the writer to question the owner and examine the patient. It was elicited from the owner that he had taken the dog for a walk in rough brush and woodland two or three days earlier and that he himself had suffered from very irritating "heat spots," especially noticeable where there was pressure from the clothing, etc. The history alone was almost diagnostic and examination of the interdigital spaces fortunately gave abundant evidence of the presence of the mites which were easily picked off for microscopic examination. This case proved a convincing demonstration under the circumstances.

In general, the symptoms are those of general irritation and scratching, biting or licking of the paws which, if not actually observed, may be detected by the much cleaner hair (if light coloured) on the anterior surface of the feet or actual bareness caused through persistent licking.

Facts which support the probability that *Trombicula* may be the cause of generalised pruritus in the dog are that cases of general pruritus without obvious cause such as larger ecto-parasites (as fleas or lice) or mange occur seasonally in the months of July to September, and that such cases are particularly rural in distribution and have not been observed as occurring seasonally in dogs kept in the larger built-up areas.

Furthermore, if many of these cases are examined for the occurrence of *Trombicula* these may be found in the interdigital fossae and a history may sometimes be elicited from the owner that he or she has also suffered from pruritus attributed usually to "heat lumps," after taking the dog for a certain walk, usually on down or roughly wooded uplands.

Summary

1. *Trombicula autumnalis* has been found responsible for a number of cases of general pruritus in the dog.

2. On account of its appropriate seasonal and rural distribution it is suggested that general pruritus (not due to other parasites) may frequently be due to *Trombicula*.

3. A predilectory habitat for the mites in the interdigital fossae was found to be of some diagnostic value.

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Calf Diseases*

(*Continued from page* 278)

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The importance of calf diseases may be judged from a survey made a few years before the war when it was shown that in 335 herds in England and Wales, 12,544 female calves were born over a period of two years and of these, 693, or 5·5 per cent., died before the age of six months. Owing to the early disposal of bull calves a more accurate estimate was obtained by confining attention mainly to the figures for females. It is probable that the rate of mortality here given is below that for the whole country as the herds were a selected sample in which a relatively high standard of husbandry might be expected to prevail. (Lovell and Hill, 1940.)

White Scours.—The aetiology of this condition has already been dealt with and there is little to add. *Bact. coli* is usually associated with it and the disease is essentially a septicaemia for in most cases the organism may be recovered from the blood, bone marrow, spleen and other tissues. The types of *Bact. coli* may vary and there is some evidence (Lovell, 1937) that special races exist. These special races have probably become established on a particular farm or in an area by first attacking weakly calves and later they dominate the bacterial flora and attack stronger calves, thus establishing an epidemic. White scours is therefore the result of the shifting of an equilibrium in favour of *Bact. coli* normally present in the digestive tract. Inadequate digestive functions, lack of colostrum or over-distension of the digestive tract leads to a quantitative increase in the normal flora. Whether invasion of the tissues occurs and white scours develops depends on the presence and virulence of any particular strain. The prevention of the condition therefore is bound up with the methods of calf husbandry, and the withholding of milk and substituting water and then diluted milk in calves suffering from the disease is a sound therapeutic measure. When calves have to be separated from the mother at birth the procedure of giving two or three pints of serum taken from the mother or another cow in the neighbourhood has much to recommend it. It has already been established that the colostrum and serum of normal cows usually contain antibodies against *Bact. coli* of the scours type, and the antibody content of the colostrum is higher than that of the serum (Smith, T., 1930). There is nothing qualitatively different but colostrum is more effective as far as antibodies are concerned (Smith and Little, 1930).

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The scours which attacks older calves from ten days to two months is probably a separate condition and in many cases may be due to *Salmonella dublin*. This organism is a human pathogen causing "food poisoning" and continued fever and is identical with the "para colon" bacillus of Danish authors. The main reservoir of infection is undoubtedly the bovine animal and its occurrence as a cause of disease in calves has been recognised in many parts of the world including Great Britain (Bosworth and Lovell, 1931; Craig, Davies and Massey, 1941). The diarrhoea is offensive, sometimes bloodstained and infected calves may develop a pneumonia and septicaemia. A few years ago an outbreak of gastro-enteritis in schoolchildren due to this organism was traced to a "carrier cow" (Conybeare and Thornton, 1938) and it is an open question as to whether this infection is commonly introduced into herds in this manner. As the aetiology and the age incidence is different from typical "white scours" it would be preferable to refer to it in some such term as "calf dysentery."

Contagious pneumonia has a varying aetiology and in many cases is associated with fatigue after prolonged transit. There exist in this country at least two types of bacteria which are frequently isolated from the lungs of calves dead from pneumonia. One is *Corynebacterium pyogenes* and the other a haemolytic cocco-bacillus often referred to as a type of *pasteurella*. Both of these organisms have been recovered from normal animals and although they may alone or together participate in a disease process it is probable that neither is the initial cause of calf pneumonias. Many years ago (Smith, T., 1918 and 1921) the opinion was expressed that an organism now called *Actinobacillus actinoides* was the actual cause of many cases of pneumonia in calves. This organism has a complicated morphology and is difficult to grow. There is no record of it actually having been isolated in this country. On the other hand, Lamont and Kerr (1939) record transmission experiments which indicate that in some cases the exciting cause of calf pneumonia is a filtrable agent. Although it is not yet a settled question whether these two bacteria, namely, *C. pyogenes* and the haemolytic cocco-bacillus, are the initial causes of many cases of calf pneumonia, the fact that they may be isolated in such large numbers from the lungs of pneumonia cases indicates the share they have in the process of killing calves.

In some cases in this country *Pasteurella septica*, apparently similar to the pasteurella found in other countries and from other animals, may be recovered from calves (Lovell and Hughes, 1935). In this form of pneumonia there is an associated pericarditis and cases are acute and usually sporadic.

These forms of respiratory disturbance are separate from those caused by helminth parasites such as *Dictyocaulus viviparus*, the cause of husk. In this disease moist pastures should of course be avoided.

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Discussion

A letter from Mr. J. F. D. Tutt was read. This described a case in which a valuable pedigree Ayrshire heifer gave birth to a full-term live but completely bald calf. Unfortunately the owner destroyed the animal so ruling out investigation and treatment.

Vet.-Colonel G. Rees-Mogg: This was a most important subject and affected him personally as he had a herd of cattle. It sometimes happened that on entering in the evening a box in which he had left a number of calves apparently in good health in the morning, one of them would be found dead. He did not profess to be a bacteriologist, but on making a *post-mortem* examination one found nothing except a little curdled milk in the fourth stomach. The affected animals sometimes had a fit, but more often one found them dead. He would like to ask the readers of the papers if they could throw any light on this. Continuing, Colonel Rees-Mogg said he was sure that the numbers of deaths of calves given to them did not represent the true figure, because farmers did not report one-half of those that occurred. He had enjoyed the papers immensely, and he felt that those who had a great deal to do with cattle would learn much from them.

Dr. R. F. Montgomerie: He had noticed that Mr. White said that sometimes even spring and summer calves were better out to grass. In his experience calves born in the month of May and on into June did much better if they were not turned out during their first summer.

They had heard much about the virtues of colostrum: but he was afraid there was some level of assumption as to the amount of immunity that was passed on with colostrum. They knew that colostrum had another function: it was of assistance in clearing the intestinal tract. He wondered if there was evidence that in the case of white scours there was as high a level of specific antibody in the colostrum as had been suggested. It almost seemed that Dr. Lovell was confident on the point. He was inclined to be doubtful, when one realised how difficult it was to try to establish a good level of serum immunity to these coliform organisms. He doubted if there was a good level of immunity to them in the serum of the dam which had not been specially immunised. If not, there could be little antibody to pass on in colostrum.

He had regarded these white scour *coli* organisms as being of a different species, or variety, from the ordinary *Bacillus coli*. Many of the strains of *Bact. coli* which Mr. MacIntyre, working at Langley Court, had been able to isolate from calves dying of white scour had been quite virulent and capable of producing a haemolysin. After a very short period of sub-cultivation these strains tended to lose their power to produce haemolysin and a toxic filtrate. This suggested it might be true that it was just a question of a set of circumstances enhancing their virulence, thus producing an outbreak.

With regard to producing a serum, the difficulty was that there were many strains of the organism. Serum produced against one strain protected mice against that strain and a limited number of others. There were, then, a number of types of white scour *coli* and it might prove impossible to produce a polyvalent serum to cover even the majority of strains.

With reference to the pneumonias of young calves, in certain areas of this country *C. pyogenes* appeared to be the causal or killing agent, whereas in other districts one met with a cocco-bacillus and more rarely a true pasteurella. Certainly *C. pyogenes* serum was of value on farms where *C. pyogenes* was the cause.

On the question of sulphaguanidine, there was no doubt that this agent had come to stay in human medicine; it found a high place in the treatment of the dysenteries of the East. A limited experience had suggested that it must not be assumed that it would be of similar value in animal dysenteric disease. In fact, it was worth while saying that in the present state of our knowledge, it should not be tried for the treatment of white scours except on an experimental basis. There were no good grounds for expecting the success in the treatment of dysentery in the adult human to be repeated in white scour of the young calf.

Professor G. H. Wooldridge: It was a long time, in his opinion, since the Society had had two such interesting and instructive addresses as those they had heard from Mr. White on the clinical side and Dr. Lovell on the bacterial side of the problem before them. There were one or two points which had occurred to him during the course of the afternoon. In the first place there was Mr. White's allusion to the use of colostrum, with particular reference to its vitamin content. He (Professor Wooldridge) believed that to be of very considerable importance, and he would like to draw attention to the fact that calves that were born early in the season although they got colostrum were likely to get the colostrum deficient in vitamin A, and so it was in these animals in which the trouble was met with most often. That could be combated if the cows calving down in the spring or late winter were given cod-liver oil, two ounces daily during winter. Then the colostrum would contain a fair amount of vitamin A.

It was very interesting to hear the discussion on the use of the sulphonamides in these cases. He had not had the opportunity of trying them out, but he should recommend them if the trials now in progress proved them to be satisfactory, particularly with regard to the use of sulphapyridine in the treatment of calf diphtheria. That was a difficult condition to treat, and if they had found an agent which was likely to be helpful he thought it would be a great step forward. Sulphaguanidine was an intriguing thing at the moment, but Dr. Lovell had said that the toxicity was a question that would require further investigation; that point, however, was not likely to cause much trouble because there was little or no absorption of sulphaguanidine from the intestine. The view held at present was that there was no greater danger with this agent than with the others of the series, but he did echo Dr. Montgomerie's warning, because these agents might in some circumstances, used without discrimination, turn out to be failures and what might have proved, after more careful work, to be a helpful agent might be discarded altogether. In any case during the present short supply sulphaguanidine should be avoided whenever it was possible to do without it.

The question of the use of serum in young calves with scours had interested him from time to time, and he had found that on some farms where it had been a difficult thing to rear calves, white scour had been checked by the injection of *Bact. coli* serum of bovine strain immediately after the birth of the calf. It was not, however, always possible to get serum of that kind. Dr. Lovell had rightly suggested that serum from the dam might be taken, but he thought better results had been obtained where serum had been taken from other calves that had been reared on the same premises, and that might have recovered from an attack of the disease. It seemed probable that their serum would be more highly potent with antibodies even than that of the cow herself. Dr. Lovell had also suggested that it was a pity that the term "scours" should be used in this work for different conditions, and it would indeed be well if another name were suggested for it. He could not agree with his suggested name for the form of scours due to Salmonella, because the term "calf dysentery" was so often applied to coccidiosis in calves, in which condition one had a truer type of dysentery from the clinical aspect.

Dr. Russell Greig: As was well known, many years ago in America, Theobald Smith showed that calves receiving their mother's colostrum appeared to be protected against white scour. At that time, of course, vitamins were unknown, but it appeared that colostrum did possess some anti-infective factor. Later, they learned of vitamin A, that it could occur in high concentration in colostrum, and that it was credited with possessing anti-infective qualities. Now it was suggested that the anti-infective qualities of colostrum were largely due to this factor. While there was a good deal of circumstantial evidence to support that view it must be regarded with caution. In Scotland white scour was most serious between Christmas and the Spring when the cows were put out to grass. Then there was a drop in its incidence, and they had supposed that this was due to the increase in the vitamin A content of the colostrum which was believed to occur in pastured cows. That suggested that if they could give the pregnant cow during her last three months, carotene or vitamin A itself in the form of carrots or of cod-liver oil, respectively, they would reinforce the vitamin A of the colostrum and so protect the calves from infection. At Moredun they ran a series of controlled experiments extending over several years and were able to show that there was a definite correlation between the vitamin A content of colostrum and the susceptibility of the calves to scour. They then proceeded to run another series of controlled experiments, in which carotene (as carrots) and also cod-liver oil, were fed to pregnant cows and they were surprised to find that they could not influence the vitamin A content of the colostrum by these means. That did not mean that when the cow went out to grass her milk would not increase in vitamin A—it would—but they could not influence the vitamin A content of colostrum as distinct from the milk. During the last two years they had run two further series of experiments in which alternate calves born in experimental herds received a high vitamin A concentrate at birth. The results were not of statistical significance but the experiments would be repeated.

Mr. White had discussed another condition which had interested him very much, *viz.*, calf tetany. In the vicinity of Edinburgh in the last two years they had had several outbreaks of tetany in calves about a month or two old. It ran a very short course and almost invariably terminated fatally. In their limited investigations they had not found a hypo-calcaemia or hypo-magnesemia in this condition; although the calcium level was relatively low, it was not lower than that of the calf herd in general. It was a condition in which he was very interested, and he hoped they would hear something from Mr. White about it.

Dr. Tom Hare concurred with Dr. Montgomerie's views. The appearance of diarrhoea should not be the criterion of our diagnosis: it was a great pity they had ever used the term "scour"; it tended to deflect their minds from the calf as a whole to its alimentary tract. It was a general systemic condition with which they were dealing. The enteritis from infection by *Bact. coli* was secondary. His (Dr. Hare's) outlook was influenced by work done years ago with Professor Glynn on the reticulo-endothelial system of the new-born. It would appear that during

the first ten days of life, the reticulo-endothelial system (which produces the humoral immunity) is in a most unstable condition.

In certain streptococcal epidemics he had found that the new-born calf could die within the first twenty-four hours without any apparent sign of ill-health; whereas infected calves, surviving to about the third day, developed scours. His reason for diagnosing them as streptococcal infection was that he had isolated the haemolytic streptococcus from the spleen, liver, lung or bone marrow of the calves and the same group of streptococcus from the dam's milk.

A second interesting clinical phenomenon in these outbreaks had been that if the calf from birth was fed on boiled milk without colostrum it reared, whereas if it fed on the infected dam it was infected. Furthermore, calves purchased from other herds within two or three days of birth and placed on the infected dams, whose own calves had died of the streptococcal infection, also contracted streptococcal septicaemia. On the other hand, they reared if fed on boiled milk on the new premises. When calves had passed into the second week of life, one could feed them on an infected dam without evidence of ill-health resulting. It might be inferred from these observations that in the pathogenesis of the streptococcal infection in new-born calves during the first week or ten days of life the instability of the reticulo-endothelial system was of more significance than the feeding or withholding of colostrum. He agreed with Dr. Montgomerie's warning that at the moment they had insufficient evidence on the influence of the colostrum.

He found coccidiosis was one of the common infections of calves over three to four weeks of age. A common clinical manifestation of the infection was epileptiform convulsions. The disease appeared in Mr. White's district to be relatively uncommon, but on many farms coccidiosis seemed to be endemic, and he would place it next in prevalence to the worm infestations.

Dr. E. L. Taylor said that he would like to refer in the first place to the diagnosis of coccidiosis. He noticed there was a considerable difference of opinion between Mr. White and Dr. Hare as to the frequency of the occurrence of this disease in cattle, and he wondered if it was possible that Dr. Hare had been relying on the finding of coccidial oöcysts in the faeces as a guide to his diagnosis. These parasites were extremely widespread in cattle, in sheep and pigs, and, of course, in rabbits, and between 50 and 90 per cent. of normal animals passed large numbers of oöcysts. The same applied to chickens, and at Weybridge they found it quite a difficult matter to diagnose the disease; the only safe guide they felt they could rely on was the presence of lesions in the mucous membranes coupled with the demonstration of the intermediate stages, the schizonts, in the cells of the membrane.

Two very important diseases of calves had hardly received any mention at all, namely, parasitic gastritis and husk. Fortunately, they were able to do a little about parasitic gastritis, but very little indeed could be done about husk. He was interested to hear from Mr. White that he had definitely associated a good nutritional status with relative freedom from disease in calves. He thought it was true to say that helminthologists all over the world were appreciating more and more clearly the importance of nutrition in these conditions. Where the nutritional level was low, the host animal had no chance to build up its immunity, and a relative state of immunity was extremely important in enabling animals to maintain health on the very heavily infested pastures where they had to live. If they were maintained at a low nutritional level this resistance was not established, the parasites won and disease occurred.

Recently we had begun to recognise a manifestation of parasitic gastritis in calves' houses during the winter time. He thought it was true to say that many store animals were starved. If they went into the buildings at the end of the summer, carrying a fairly heavy infestation of parasites, and were maintained on a low diet, they had no chance to throw them off and would gradually go down-hill right through the winter months.

Referring to our uncertain knowledge of the epidemiology of husk he called attention to the sporadic nature of its occurrence as compared with parasitic gastritis. It had been shown that the infective larvae of these parasites were not so able to climb up into the herbage as were the infective larvae of the stomach worms causing parasitic gastritis. One result of this was that although the stomach larvae might be found in hay, one was rarely able to demonstrate the husk worm larvae in hay. On the other hand, as far as parasitic gastritis was concerned, it was comparatively safe to put cattle on the aftermath but was unsafe to put them on aftermath where the ground had been infected with *Dictyocaulus*, because in the one case the worms had climbed up into the herbage and been taken off in the hay and in the other case they had been left behind.

The mention of pneumonia in calves was interesting from the point of view of differential diagnosis. It had been his experience in the field that these pneumonias in calves were frequently confused with husk, and he had met a number of veterinary practitioners who had been quite certain of their diagnosis of husk amongst cattle which had never been out to grass, and had been fed entirely on hay. In such instances as he had been able to make a thorough investigation he had been unable to demonstrate the presence of husk parasites and he was of opinion that in those cases where husk had been diagnosed in cattle that had never been out to grass, a faulty diagnosis had been made; the symptoms there, simulating husk, were those of a bacterial pneumonia.

Mr. D. L. Hughes: He would like to enter the arena on the subject of vitamin A and the antibody content of the colostrum. He did feel that Dr. Russell Greig, in summing up on the vitamin A side of the story, in his mention of Theobald Smith, who demonstrated the value of colostrum, glossed over the fact that Theobald Smith proved the presence of antibodies for *Brucella abortus* in colostrum.[1] There was indirect evidence that there might also be antibodies for *B. coli* in bovine colostrum. From his papers it was clear that Theobald Smith considered colostrum was of value to the new-born calf by virtue of its antibody content. That was not to say that vitamin A had no bearing on the subject. As Dr. Hare had suggested, it might be that in the first few days of life the antibody content of the colostrum played a dominant role and that later the vitamin A in the milk became important.

The second point he wished to mention had reference to the pneumonias of calves and the possible role of a virus to which Dr. Lovell had drawn attention. Recent work in America had shown that haemophilic organisms could be obtained from certain cases of calf pneumonia. The work of Shope on swine influenza had clearly shown the relationship between *Haemophilus suis* and the virus of swine influenza. Might there not be an analogy between this disease and some of the pneumonias of calves? If research institutes could find the workers, the money and the time, none of which was easy, the study of possible virus infections of the respiratory tract of calves might yield fruitful results.

Mr. H. E. Bywater was of the opinion that a very important aspect in the control of calf diseases had been rather overlooked that afternoon. Mr. White, in his opening remarks, stressed the importance of animal husbandry with regard to the health of the calf, and he wished Mr. White had taken the subject a little further. He agreed with Dr. Montgomerie that it was recognised that one should not turn calves out during their first year, as a control measure against parasites. What he would term bacterial calf diseases, however, were essentially "house" diseases. Once you got infection in calf houses, even though they might be reasonably good houses—and most of them were lamentably poor—then the only way to rear live calves was to get rid of your houses. He had found that one could control white scour and infectious pneumonia of calves by allowing the cows to calve out in the field and allowing the calves to have the benefit of the colostrum during the first month of life, keeping them out on the pastures as long as possible. He knew a dealer who bought "in-calf" cows, calved them down and then sold the cow; during the winter time the dealer could never rear a calf, but during the summer months he allowed his cows to calve down at pasture and rarely lost a calf.

Dr. Tj. Bakker had been very interested in listening to the papers and discussion the more so because he was himself dealing very largely with calf diseases and found the problems with which he was faced to be the same as those they had been discussing that afternoon. He wished to point out that the relation between disease and nutrition was a very complicated one. They found that the incidence of scours in calves in the spring and summer was much less than during the latter part of the winter. They had been experimenting with vitamin A through dried grass, silage fed to the cows, etc., but they found that they could not alter the incidence of scours in calves, and that they could only slightly raise the vitamin A content of the liver of new-born calves by supplying a winter feed of high carotene content. Dr. Montgomerie had not, however, given them any results in regard to serum. They had been starting another line of investigation, namely, administering vitamin C to newly born calves. Unfortunately they were not able to continue that line of research because they had to leave Holland hurriedly, but it would be interesting for future research.

He had been struck by the remarks that were made concerning calf tetany. They got many cases of calves that dropped dead suddenly, but the symptoms were different and he had never seen a case in which they were prolonged. These cases occurred only in calves solely on a milk diet.

He had heard it mentioned twice that calves ought not to be out at grass during the first year. That was quite contrary to his experience; in the best rearing districts in his country the farmers kept one pasture very short and only calves and horses were allowed there. He thought, therefore, that if a system of ley farming were adopted in this country the farmers would find that they would be able to keep their calves on grass and rear them free from parasites, and they would benefit from the sun and the exercise they would get.

Mr. R. C. U. Fisher: He was interested in what had been said about sulphaguanidine that afternoon. It should certainly be tried out in diseases of calves but too much should not be expected of it. During the discussion on a paper read by Colonel Hamilton Fairley on the treatment of human dysentery in the Middle East, at a meeting of the Royal Society of Tropical Medicine and Hygiene last autumn, it became evident that sulphaguanidine was only of value in Shiga dysentery, not as a cure but because it reduced the period of hospitalisation.

Mr. J. Francis: Udall claimed that the incidence of calf scour could be reduced by restricting the amount of milk given to bucket fed calves. Experiments had now been performed indicating that heifer calves became infected with *Str. agalactiae* by suckling each other if they were fed on mastitis milk.

The work of Lamont and Kerr on pneumonia in calves had been mentioned and similar findings had been reported by Nagel in Germany and by Barker. The latter worker passaged the virus in mice and then produced the typical disease in calves with virus from mice. He was rather interested in the coliform organisms described by Dr. Montgomerie; he was not sure whether the property of producing haemolysis was taken as an indication of pathogenicity. Coliform organisms could be cultured from nearly all tonsils of normal cows and many of them were haemolytic.

The Replies

Mr. White thanked the many speakers who had brought such a lot of light to bear on the subject of calf scour and calf pneumonia; as a practitioner it had been exceedingly helpful to him and he hoped it would be to others. Col. Rees-Mogg had had to leave the meeting but he would like to stress that in these sudden deaths in calves it was very advisable to suspect lead poisoning. He had a communication from Dr. Barron only a week or so ago stating that he had had on an average one case of lead poisoning in calves every month during the last year. Dr. Barron only got some cases that occurred and so did they, and he thought in all probability the incidence of this lead poisoning was much commoner than they were apt to recognise. One had to search for the source, and it was in old paint that the danger lay rather than in fresh lead paint.

The opinions about turning out calves seemed rather varied, and the suggestion of close mowing and ley farming might help the matter. The keeping of cows out at pasture over the calving period would reduce sickness amongst calves very much indeed, particularly white scour, but there again it was not a very easy method of farming; it was probably of use to apply it where the farms were severely affected with white scour, but he did not think one could induce the farmer to do it as a routine measure. In many parts of the country, moreover, the ground was far too wet to turn the cows out in all seasons.

Professor Wooldridge had said that he was pleased to hear that sulphapyridine was successful in calf diphtheria; he could assure him that it did effect a cure. He (Mr. White) had not seen the symptoms of epilepsy in coccidiosis, but his experience of coccidiosis in young calves was extremely small; he would, however, like to ask Mr. Taylor whether they had tried sulphaguanidine for coccidiosis in calves, because it was a rather hopeless trouble to treat, and although one did not get it very often it was disheartening not to be able to make any headway with it.

With regard to parasitic gastritis in calves, he would like to ask Dr. Taylor if they had found any evidence that cobalt deficiency predisposed the calves to this.

The last speaker brought out the point of the amount of milk to be fed to calves, and suggested that a smaller amount would be helpful. He (Mr. White) entirely agreed with him, and the point was stressed by Williams. If you cut down the feed you produced a calf with a decent sort of middle, not an ugly pot-bellied creature which was much more susceptible to calf scour and pneumonia.

Dr. Lovell: One or two questions had been raised to which he would like to reply. Colonel Rees-Mogg raised a point with regard to his statistics. He (Dr. Lovell) had stated that they were based on 335 herds: most of these were milk-recording herds, so that the loss of one calf in 18 was a low estimate. The presence of antibodies in colostrum had also been discussed and Theobald Smith had shown many years ago that there was a higher antibody content in colostrum than in serum and this applied to *Bact. coli* recovered from cases of white scours. He (Dr. Lovell) had had a similar experience to Dr. Montgomerie regarding the virulence of *Bact. coli*, for when first isolated from cases of white scours they were very virulent for experimental animals but they lost this very rapidly.

Professor Wooldridge had raised a point regarding sulphaguanidine and although this speaker had supported what Dr. Montgomerie had to say regarding toxicity, it was apparently the amount which was acetylated which was important.

He would like to thank Dr. Russell Greig for his contribution concerning the vitamin A story, and Dr. Hare, too, for his suggestions. They were looking out for the activating agents in various diseases, because he was of the opinion that a lot of the bacteria that were isolated from diseased tissue were secondary infections which a normal healthy animal could keep under control.

Dr. E. L. Taylor, rising to reply to the points addressed to him, spoke first with reference to sulphaguanidine and sulphamethazine—which latter drug they had since found to be the better for coccidiosis in chickens—and said that as yet they had not been able to try these agents out in calves, but they would like the opportunity to do so. In the current number of *The Veterinary Record* there was a communication regarding the use of sulphamethazine in the drinking water; it was an ideal remedy and quite sufficient to cut short an outbreak of coccidiosis in chickens.

In regard to the point about cobalt deficiency and its possible association with parasitic gastritis in cattle, he was afraid nobody had made any observations on anything comparable with the so-called specific "pine" in sheep and cattle, and he did not think anything was known of an association between cobalt deficiency and coccidiosis in calves.

THE VETERINARY RECORD

July 24th, 1943

THE PROGRESS OF SCIENCE

THE great achievements of previous generations of scientific workers now stand out in historical perspective, but there is, perhaps, a tendency to under-estimate the fundamental advances which are being made at the present time.

Progress is not only being made in the accepted fields of research but new techniques are being developed to increase the scope of scientific investigation. This applies particularly to the study of man, both as an individual and in the mass. Psychology and sociology are rapidly growing subjects to which experimental animal psychology—just as comparative pathology and physiology have done in their field—can make important contributions.

Chemistry and physics are uniting in the study and synthesis of plastics, and X-ray analysis is helping to elucidate the essential structure of matter. Soil science, plant genetics and vernalisation, a process by which germination is begun before the seed is sown, thus considerably reducing the time required for growth, are subjects which have been studied with special interest in Russia. Progress in these fields will no doubt increase the area of cultivable land both in sub-arctic and semi-arid regions.

Since Stanley's observations on the protein nature of tobacco mosaic virus were published in 1936, a vast new body of knowledge has grown up. We no longer look upon the ultra-visible viruses as mysterious disease-producing agents; like the bacteria they are a heterogeneous group, but we know that some of them are protein in nature, and it has been suggested that they are very similar to the autocatalytic enzymes. They are now being studied by the usual methods of chemical and physical research and their morphology is being studied with the electron microscope.[1]

The year 1936 is also notable as at that time a new era in therapy was begun. Speaking at the close of the 19th century, M'Fadyean said: "In the case of bacterial affections we may well hesitate to intervene in the combat, lest our well-meant endeavours should prove fully as embarrassing to the defending cells of the animal as to the attacking microbes." Slight advances were made, but until the sulphonamide group of drugs was introduced this statement still fairly described the position. Now, at last, we have a group of drugs that are more harmful to the bacterium than to the host and, what is even more important, we are beginning to understand the rationale of chemotherapeutic and antiseptic action. The sulphonamides act by interfering with an essential bacterial metabolite, *p-amino-benzoic* acid, and already another substance, pantoyltaurine, acting in a similar way, has been evolved.[2] Penicillin and gramicidin are also potent chemotherapeutic agents whose mode of action will no doubt be more fully established in the course of time. These advances have linked up chemotherapy with the larger subject of enzyme chemistry and aroused fresh interest; the action of various antiseptics, including the acridines, is being re-investigated. Many of the hormones and vitamins have been isolated in a pure state and more and more are being synthesised in the laboratory, a process which usually reduces the cost of production, and therefore increases their usefulness.

Until recently it appeared that the problem of controlling the "droplet infections," causing respiratory disease in man and animals, would remain unsolved. The whole subject has been ably reviewed by Buchbinder.[3] It is now believed that direct contact is less important than it was thought to be and that the greatest spread of respiratory infection is produced by small dried droplets floating in air for relatively long periods and by the resuspension of dried droplets that have settled on floors or other surfaces. Various methods have been adopted in an attempt to reduce this type of infection. The reduction of dust and the increase of sunlight or daylight in buildings is perhaps the most practicable, but artificial ultra-violet light is also useful and has been installed in some operating theatres. Other workers have investigated the action of chemical sprays. Of these, various glycol vapours are perhaps the most effective. Under experimental conditions a concentration of 1: 2,000,000 or even higher will rapidly destroy bacteria or influenza virus suspended in the air; they are cheap and non-toxic to man. Whilst this work seems so promising it is as yet only in the experimental stage and many difficulties will probably have to be overcome before it is of any value in practice.

We have merely touched on a few examples but it is clear that we are living at a time when a general scientific advance is making fundamental contributions to preventive and curative medicine, both in the veterinary and human fields.

[1] *B.M.J.* (1942.) *ii.* 728.
[2] *Lancet.* (1943.) *i.* 463.
[3] Buchbinder. (1942.) *J. Amer. med. Ass.* **118.** 718-730 and p. 734. See also Robertson. (1943.) *Science.* **97.** 142.

PROFESSIONS AFTER THE WAR

The Minister of Labour and National Service has taken an initial step in preparation for the demobilisation of scientific, professional and technical staff from the Services and from the war industries after the end of hostilities, and their redistribution in suitable occupations both at home and overseas. He has appointed a committee of enquiry, of which Lord Hankey is the Chairman, the terms of reference of which are as follows: To consider and report upon the arrangements which should be made to facilitate the employment after the end of hostilities of men and women qualified to undertake responsible work in the professions or elsewhere, with particular reference to (*a*) the organisation, premises and staff of the Appointments Department of the Ministry of Labour and National Service; and (*b*) the arrangements which should be made for co-operation between the Appointments Department and other organisations and institutions (including professional, industrial and commercial organisations) and universities, at home and abroad.

Lord Hankey (Chairman); Mr. H. M. Barton, Vice-President of the Institute of Chartered Accountants; Sir Bernard Bourdillon, lately Governor of Nigeria; Mr. J. T. Davis, Director of the Co-operative Wholesale Society, Ltd.; Mr. R. H. Dobson, Chairman of A. V. Roe & Co., Ltd.; Mr. I. S. Duncan, Deputy High Commissioner for Australia; Sir William Fyfe, Vice-Chancellor of Aberdeen University; Mrs Mary Hamilton, Alderman, L.C.C., 1937-40; Mr. Clement Jones, Director of the Booth Line; Dr. H. Lowery, Principal, Essex Technical College, Walthamstow; Mr. John McLean, Association of British Chambers of Commerce, and Hon. Treasurer, London Chamber of Commerce; Mr. Godfrey Mitchell, Chairman of George Wimpey & Co.; the Hon. Eleanor Plumer, Principal of the Society of Home University Students, Oxford; Professor R. V. Southwell, F.R.S., Rector, Imperial College of Science and Technology, London; Mr. H. V. Tewson, Assistant General Secretary, T.U.C. General Council; Mr. Henry Thirkill, Master of Clare College, Cambridge; Mr. G. W. Thomson, Association of Engineering and Shipbuilding Draughtsmen.

Secretaries.—Mr. H. F. Rossetti and Mr. F. M. H. Markham, Ministry of Labour and National Service, Sardinia Street, London, W.C.2.

* * * * *

Sheep scab is declining steadily in Lincolnshire, attributed to some extent to closer supervision of flocks and double-dipping operations.

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The annual death rate of hogs in U.S.A. from hog cholera is now less than one-fifth of what it was 20 years ago, and is about one-tenth of the death rate experienced in the devastating outbreaks which occurred during 1886-87, 1895-96 and 1912-13, when the disease was rampant in swine-producing areas and effective control measures were not available. Under the Virus-Serum-Toxin Law which the U.S. Department of Agriculture administers, the quality of anti-hog-cholera serum, hog-cholera virus, and other veterinary biological products, is protected by official veterinary supervision of their manufacture.—*Vet. Med.*

CLINICAL COMMUNICATION

Two Cases of Diaphragmatic Hernia

J. CASSELLS, M.R.C.V.S.,
Holytown

The cases described below were diagnosed within a year of each other, which is rather remarkable, in that diaphragmatic hernia is considered to be of somewhat rare occurrence.

Case 1. *Subject.*—Three months-old kitten.

History.—The kitten was brought for treatment subsequent to being trampled on by the owner three days previously. The statement made was, that after being trampled on, the kitten had lain about for a day, appeared better the next, but became very ill on the third, when it was brought to my notice.

Symptoms.—The cat was inclined to take up a prone position. The respirations were greatly accelerated and laboured, but the temperature was normal. Palpation of the abdomen was not resented. Ausculation of the thorax revealed intestinal sounds on the left side, and percussion of the thoracic wall gave a dull note.

Diagnosis.—There was no hesitancy in diagnosing diaphragmatic hernia, and immediate destruction was advocated and carried out.

Post-mortem Examination.—Examination of the abdominal and thoracic viscera disclosed a rupture in the diaphragm; the hernia consisted of small intestine in a healthy state.

Case 2. *Subject.*—A cross-bred terrier-spaniel bitch, three years old.

History.—The complaint of the owner was that the dog was breathing heavily. Questioning could bring to light only the facts that the bitch had had puppies six weeks before, and that she was taking milk as food. There was no clear history of an accident at the first consultation.

Symptoms.—When first seen, the dog was suffering from severe respiratory distress. Palpation of the abdomen was not unduly trying to the dog, nor did it reveal anything diagnostic, beyond the fact that the respiratory distress was increased. The animal found it difficult to maintain a recumbent position (particularly when laid on the right side) and was relatively more comfortable standing or sitting. Auscultation was not significant. The pulse was accelerated; the temperature was normal. Prognosis was very grave in view of the possibility that there was a diaphragmatic hernia.

On the following day there was no change in the animal's outward appearance. The temperature was normal, but the pulse was assuming a thready character and the mucous membranes were slightly cyanosed. Auscultation showed normal respiratory sounds but there was transference of the heart sounds from the left to the right side. Percussion revealed tympany in the middle third, and metallic notes on the lower third of the left thoracic wall. Diaphragmatic hernia was now a positive diagnosis, and destruction was advocated. It was at this point that the owner recalled that the dog had jumped from a window about 10 ft. above ground about one month previously. The animal was given morphia intravenously and died immediately.

Post-mortem Examination.—Extensive bruising (not visible nor suspected during life) was found on the left side of the abdomen, particularly under the mammae. Examination of the contents of the abdomen disclosed that the penultimate 6 inches of small intestine was necrotic, and that its mesentery was in a similar state, and adherent to the abdominal wall. The area of adhesion was covered by a dull greenish diphtheritic membrane (unfortunately specimens for bacterial examination were not taken though in all probability they would have proved sterile) and coincided with an external contusion. On examining the diaphragm, it was discovered that quite half of its circumference (in its ventral or costal attachments) was ruptured, the rupture occurring in the muscular portion. The hernia consisted of stomach and liver. The mediastinum also contained a fair effusion of blood.

Discussion.—That the dog had suffered some severe mauling was undoubtedly the case, but the remarkable point is the absence of pyrexia throughout, and the fact that the pulse changed from a normal accelerated one to a wiry pulse, due to bowel and mesenteric lesions. That there was no internal haemorrhage is, considering the necrotic state of the mesentery, also rather remarkable. Then again, the fact that a blow on the abdomen can have such serious internal manifestations is also worthy of note. Finally, the almost complete lack of anamnesis once more demonstrates the greater difficulties the veterinarian faces as compared with his counterpart in hominal medicine.

At a special general meeting of the Ayrshire Cattle Herd Book Society a recommendation from the Council that permission be granted to members of the society resident in England and Wales to form an English Ayrshire Cattle Breeders Association was unanimously agreed to.

Retirement of Professor George H. Wooldridge, F.R.C.V.S., M.R.I.A.

The knowledge, shared by many of our readers, that the recent announcement in our columns of pending vacancies on the staff of the Royal Veterinary College in fact embodied an intimation of the retirement of Professor George Wooldridge, Vice-Principal and Professor of Medicine, from the staff of that institution, is at once a source of profound regret and of deep thankfulness for a life of able and devoted service to the youth of the profession. Inevitably, the writer, who shares with countless others the memory of an inspiring teacher who invariably carried his interest and friendship into post-graduate days, has a sense of recording the incredible—the severance of a tuitional association which somehow seemed as destined to perpetuity as must be the identification of the name of Professor Wooldridge with all that is best in the life of the College, since his appointment in 1908 as Professor of Medicine, Hygiene and Dietetics. History—which alone can justly chronicle the amazing sequence of events and gauge their significance—will attest the value of such an influence at the R.V.C. during an era which witnessed the impact upon it of two major wars, penury and condemnation, demolition and rebuilding, relative affluence with promise of fulfilment of function—then the uprooting and frustration common to so many and so much in the chaotic conditions of to-day.

In a short while this Association will do honour to itself by conferring the distinction of Honorary Membership upon an outstanding figure in its ranks who, by his inexhaustible energy and enthusiasm in the furtherance of its interests, has placed the N.V.M.A. for ever in his debt. It is not proposed, therefore, to encroach on the province of those who will have the privilege of voicing that indebtedness by a recital in this issue of the facts of a career which has been of the utmost service, not only to the Royal Veterinary College, but to the numerous other institutions and causes which have benefited by the exercise of his great talents, his wisdom in counsel and tireless effort on their behalf. The pages of this journal frequently have borne witness to the catholicity of these interests, to Professor Wooldridge's prowess in debate and the value of his contributions to the life, both scientific and political, of the profession, while in our issue of December 4th, 1926, the opportunity was taken, on his election to the Presidency of the N.V.M.A., to pay biographical tribute to one whom the whole profession holds in the highest esteem and regards with the affection reserved for those who, by their personal qualities, have endeared themselves to its members. This expression of a heartfelt sentiment extends quite naturally to Mrs. Wooldridge, sharer to the full in both achievement and trial and ever an abiding source of strength. They carry with them the affectionate good wishes of an incalculable number of men and women within the profession and beyond. It is impossible, however, with any sense either of assurance or verity, to express the customary hope that Professor Wooldridge will now be able to enjoy well-merited leisure. The more obviously ease is earned, the less likely is it to be indulged or welcomed; therefore we rejoice to know that our ever-youthful friend maintains that health and strength which will enable him to continue in that close association with the concerns of the profession which is such a joy to him and manifestly of such help and encouragement to his colleagues.

CONTROL OF MILK-BORNE BRUCELLOSIS

The Journal of the American Medical Association **(quoted by *Veterinary Medicine*) in a report on a milk-borne epidemic of brucellosis in Marcus, Iowa, stresses in its issue of January 30th that careful pasteurisation of all dairy products is an essential safeguard against this infection. From the investigations it also appears that hogs should not be permitted to run in the same lot with dairy cows and that the prevention of brucellosis in man requires a continuous programme of effective measures for the eradication of the disease among farm animals. The epidemic at Marcus, involving 77 persons, was caused by a strain of the organism causing brucellosis which was traced to a raw milk supply. It was found that the hogs had been allowed to mingle freely in the same pasture with the dairy cows.**

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Weekly Wisdom

"The comparative pathologist can no more afford to dispense with the history of diseases than the healer of mankind, especially those of a general character; for in proportion as he knows the past he is in a better position to control the present and make provision for the future."—George Fleming, "Animal Plagues, their History, Nature and Prevention." Vol. I, p. xxviii. London, 1871.

ROYAL COLLEGE OF VETERINARY SURGEONS

Membership Examinations (July, 1943)

List of Successful Candidates

(*Continued from page 286*)

Glasgow

First Year:

Barr, R. B.
*Besant, J. B.
Crawford, Miss D. H.
*Crawford, Miss E. T.
Findlay, W. L.
Glenroy, J. McL.
*Kight, D. G.
*Lornie, David
McCracken, David (C)
MacInnes, Thomas
Marshall, A. A. (C)
Martin, W. B.
*Pfoff, H. W.
Ross, J. G.
Semple, Matthew
Urquhart, G. M. (C)
Williams, Miss Leslie

* Denotes 2nd class honours.
(C) Denotes credit in Chemistry.

Second Year:

Barr, W. B.
Campbell, R. S. F. (P)
Dickie, A. T.
Forteath, A. D.
Lamond, J. L.
Lawson, D. D.
Young, A. A.
Young, G. B.

(P) Denotes credit in Physiology, etc.

Third Year:

Aird, J. S.
Brown, John (A)
*Burns, John
Campbell, Donald (A) (H)
Corbett, Miss Betty
Galbreath, Miss M. C.
Hyam, R. I. C.
Macfarlane, I. M.
McIntee, D. P.
MacKenzie, Miss Catherine
Mackenzie, Miss Jamesina (A)
McKenzie, Alex (A) (H)
McGregor, J. L.
Marshall, T. B.
Sullivan, Jerome
Sutherland, W. R.
Thomson, Wm.
Watters, Charles
Wilson, Andrew (H)

* Denotes 2nd class honours.
(A) Denotes credit in Anatomy.
(H) Denotes credit in Hygiene.

Fourth Year:

Bannatyne, C. C.
Brownlie, J. F.
Corrie, J. W.
Denholm, T. C. (Paras)
Foster, A. H.
Gillespie, A. E.
Hastie, P. S. (Paras)
Heatley, David
Johnston, J. B.
McGuinness, Alex
Maguire, R. D.
Maneely, R. B.
Morrison, J. G.
Parker, Joseph
Pollock, J. C.
Snowden, J. S.
Usher, F. J.
Weissberg, Edmund
White, G. J. (Paras)

(Paras) Denotes credit in Parasitology.

Final Year:

Baxter, J. D.
Boyd, J. A.
Brown, A. C. L.
Buchanan, W. G.
Cooper, Miss M. B.
Craig, John
Duncan, T. H.
Fraser, J. R.
Mackenzie, G. J.
McCallum, F. J.
McLelland, Miss R. M. M.
Macleod, W. J.
Neil, H. J. D.
Noble, N. H.
Smith, I. M.
Stewart, W.
Wilson, R. M.

(*To be continued*)

"U.S. FREE FROM MOST OF MAJOR LIVESTOCK MALADIES"

Under the above heading *Veterinary Medicine* refers as follows to a recent report by Dr. John R. Mohler, Chief of the Bureau of Animal Industry U.S. Department of Agriculture: "The United States is entirely free from ten of the 15 livestock maladies that are of major importance in the world. Among these ten plagues are included foot-and-mouth disease, rinderpest, surra, murrina and nagana. Of the five other diseases, bovine tuberculosis and cattle tick fever have been practically eradicated and equine encephalomyelitis, hog cholera and pullorum disease are under effective control. In his report Dr. Mohler gives the symptoms and the means of preventing 22 diseases occurring among the livestock of the United States."

QUESTIONS IN PARLIAMENT

The Lords and Provision for Veterinary Education in Wales

In the House of Lords on July 8th, Lord Davies asked the following question standing in his name:—

To ask His Majesty's Government whether, in view of the projected establishment of new veterinary training colleges at Cambridge and Bristol, in addition to the five similar institutions which already exist in England, Scotland and Ireland, they will make provision for the special needs for Wales in this matter by creating at least one veterinary school under the auspices of the Welsh University.

Viscount Cranborne: The future of veterinary education is at present being considered by the Committee on Veterinary Education set up by the Minister of Agriculture and the Secretary of State for Scotland. I understand that the Committee has recently received representations on the subject from representatives of the Welsh Council of Agriculture.

Lord Davies: Will the noble Viscount say when it is likely that a decision will be made?

Viscount Cranborne: I could not say that this afternoon. These representations will have to be considered, but I have no doubt that there will be no undue delay.

Lord Davies: Can you give me assurance that the gentleman who represents the Board of Agriculture in England and the gentleman from the Scottish Office will give due consideration to the claims of Wales in this matter?

Viscount Cranborne: I am quite certain that they will give due consideration to the claims of Wales.

NOTES AND NEWS

The Editor will be glad to receive items of professional interest for inclusion in these columns.

Diary of Events

July 30th.—Meeting of the Yorkshire Division, N.V.M.A., at Leeds, 3 p.m.
July 30th.—Summer Meeting of the Sussex Division, N.V.M.A., at Brighton, 12 noon.
July 30th.—Summer Meeting of the Royal Counties Division, N.V.M.A., at Streatley, 11 a.m.
July 30th.—Meeting of the North of England Division, N.V.M.A., at Houghall, nr. Durham, 2.30 p.m.

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PERSONAL

Appointments in the Colonial Veterinary Service.—The following appointments are announced: Mr. J. A. N. Hobday, O.B.E., M.R.C.V.S., Chief Veterinary Officer, Bechuanaland, as Director of Veterinary Services, Northern Rhodesia; Mr. E. T. Fern, M.R.C.V.S., Veterinary Officer, Northern Rhodesia, as Deputy Director of Veterinary Services, Northern Rhodesia; Mr. M. Landau, M.R.C.V.S., as Assistant Veterinary Officer, Palestine.

Birth.—Thomson.—On July 11th, at Manor Lodge Farm, Worksop, to Joan (*née* Bowett), wife of P. D. Thomson, M.R.C.V.S., a son, Peter Alexander.

Dr. W. R. Wooldridge, President of the N.V.M.A., has been elected as a co-opted member by the Committee of the Nutrition Society.

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R.C.V.S. OBITUARY

The Late Mr. Alfred J. Milligan, M.R.C.V.S.

An Appreciation

In the passing of Mr. Alfred J. Milligan, Annan, recorded in your issue of July 10th, the profession has lost a highly respected member and the community an able and efficient veterinary surgeon. The day before his death Mr. Milligan attended to his practice as usual and his sudden passing the following morning came as a great shock and grief to his many friends.

A native of Kirkcudbrightshire and a graduate of Glasgow Veterinary College, Mr. Milligan came to Annan 46 years ago. In those days his means of transport was the horse, of which animal Mr. Milligan remained a judge and lover to the last. Mr. Milligan served a large and important agricultural area and was highly respected and equally well received in mansion and cottage. Keep-

ing abreast with the times he was always up-to-date with current literature and modern methods of treatment.

Behind a somewhat blunt exterior was a heart of gold. He was fond of company, young of heart and brimming over with good fellowship. The many students and assistants who have been privileged to share in the work and play at Annan will testify to these qualities in Mr. Milligan and remember with gratitude his teaching and example.

One of the original members and a former President of the Dumfries and Galloway Division of the N.V.M.A., Mr. Milligan was a regular attender at meetings and always took a keen interest in all matters pertaining to the good of the profession.

Mr. Milligan's work was his hobby, but up to the last he was a staunch supporter of the Dumfriesshire Hunt, and is remembered as a good sportsman and straight rider to hounds.

Predeceased some years ago by Mrs. Milligan—a sweet memory to all of us who knew her—Mr. Milligan is survived by two sons and a daughter, Mr. W. A. Milligan, M.R.C.V.S., D.V.S.M., Divisional Inspector, Ministry of Agriculture and Fisheries; Mrs. J. W. Macaulay, Nairobi; and Mr. Johnstone Milligan, M.P.S., a member of the staff of Messrs. Parke Davis & Company, but at present an Officer in H.M. Navy.

The Milligans were an exceptionally devoted family and to them we all extend our deepest sympathy.

G. W. S.

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ROYAL ARMY VETERINARY CORPS

The following announcements are made in the issue of *The London Gazette* dated June 25th, 1943, and July 6th, 1943:—

The undermentioned to be Lts.:—

Godfrey Greensit Alton, B.Sc. (274883) (May 20th, 1943); James Phillips (274879), Richard Noel Phillips (279199) (May 24th, 1943); Alasdair William MacLeod (274095) (May 31st, 1943); Anthony Marshall Morrison (279201) (June 1st, 1943); William MacKinnon (279457) (June 7th, 1943); James McCorkindale (279622) (June 8th, 1943); Pte John MacDonald (274772), from R.A.M.C., to be Lt. (May 11th, 1943).

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Erratum.—In Mr. Gordon Knight's reply to the points raised in the discussion by the Central Veterinary Society of "Some affections of the hip joint in the dog" (*Vet. Rec.*, **55**, 270) *for* "coxa vana" *read* "coxa vara."

CORRESPONDENCE

Letters to the Editor should reach the Office not later than by the first post on Monday morning for insertion in following Saturday's issue.

The views expressed in letters addressed to the Editor represent the personal views of the writer only and must not be taken as expressing the opinion or having received the approval of the N.V.M.A.

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VETERINARY SURGEONS ACTS (AMENDMENT) BILL

Sir,—I have no desire to enter into a pen controversy in regard to the merits or demerits of the above Bill, but I am reminded of a conversation I had some years ago while making a *post-mortem* examination in a knacker's yard, when the remarks of the knacker, a very intelligent man, emphasised two important points; firstly, he recognised, from his own experience, that the expert was an asset to the community, and secondly, that the quack was a menace, and those of us who have any experience of the handiwork of those gentlemen would have no difficulty in agreeing.

And now may I point out here these two assertions never possessed such far-reaching importance to the Government, the country, and to the profession, as they do to-day; I have often wondered why the Ministry of Food does not step in and use its influence to make quack doctoring illegal, for be it noted, the loss entailed in this country, through mal-management and quack doctoring, must run into millions of pounds. This is no figmentary assertion, but a fact based upon many years of observation, and I couple with that unnecessary suffering, through maltreatment.

And how can it be otherwise? These quacks have had no scientific training as we know it, and in very truth if it were not for that wonderful asset, the "vis medicatrix naturae," quackery would be non-existent both in human and comparative medicine.

As a remote observer, and as it seems to me, the Royal College, in bringing forward this Bill, is placing itself in a somewhat delicate position. It is proud of its autocratic power in the one-portal system, it demands from its would-be graduates a long period of training, intensive training, and a large monetary outlay, while it proposes to allow the charlatan a free pass in at the back door. This, to say the least, is not cricket and to me it does not seem logic.

I venture to think the Royal College should urge "the powers that be" to set up a commission to enquire into the losses sustained in this country by quack doctoring, and the causation of unnecessary suffering, and it should do so without delay, for never was there a better opportunity than now. I am sure such a course would, unlike the Amendment Bill, receive the wholehearted support of the whole profession.

Yours faithfully,
Wm. Scott.

Fryern Hall,
Bridgwater.
July 4th, 1943.

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REFRESHER COURSES

Sir,—I have noticed, during the past few years, occasional references to refresher courses for practitioners, but they have come to nothing. It is possible, however, that the war is giving us other things to worry about. There seems to me to be a definite need for such courses in the following cases:—

(1) The city practitioner will have to switch round to find some other source of income, to replace the waning horse. He will need the necessary practical and theoretical instruction, to keep abreast with the times and, incidentally, above water. This will be difficult owing to the good work carried out (according to the Press) by the various societies and quacks.

If these courses were arranged at the veterinary colleges—say one afternoon once or twice a week over a year (allowing for college vacations)—a sufficiently large attendance of practitioners in the district would be secured to make it worth while.

(2) Those members outside the college districts could have a three or four weeks' intensive course in the subjects in which they desired to specialise. This course could be repeated yearly for the benefit of those who could not attend the previous one. (It would be more profitable than a holiday.)

It would seem an impossibility to give the necessary tuition in such a short period, but our professors are experts at their work.

If this, or a similar scheme, is not made available very soon it will be too late. The animal-loving public willingly pay for skilled treatment, but not for "panel" treatment given at a lower professional scale than the various societies give them for nothing. Therefore, it is up to the Council of the R.C.V.S. to help these practitioners in the only practical way possible and, at the same time, raise the status of the profession in the minds of the public. They should put forward some such schemes as soon as possible, so that, when hostilities cease, the good work will have taken root.

Yours faithfully,
N. G. Michie, M.R.C.V.S.

32, Low Hill,
Liverpool, 6.
July 8th, 1943.

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GRADING UP THE DAIRY HERD: DANGER OF OVER-SPECIALISATION

Sir,—We are constantly being told by professional spokesmen that the future of the profession lies rather in preventive than in curative work. If this is really so, should not the profession lead a campaign against the over-specialised thousand-gallon-standard cow as a necessarily desirable progenitor of our future dairy herds? Is it not agreed that the root cause of the innumerable irregularities in the sexual cycle of cows, and even of many of the diseases from which they suffer, a combination of evils which makes our dairy cows the most strikingly unhealthy of all domestic animals, is to be found in abuse of nature in attempting to get too much out of the body functions of heifers and cows? Rather than continue the present emphasis on stilboestrol, ovary-manipulation, sulphanilamide, etc., all a great burden on the milk industry, would it not be of much greater permanent benefit to the health of British dairy cattle to encourage dual-purpose breeding, at a sacrifice of one or two hundred gallons of milk per cow per annum, so that over-specialisation, with its results, overstrain and disease, would cease, whilst ensuring the production of male calves worth rearing?

I urge that in this matter the profession itself, whilst carrying on its useful curative work with cows, should lead the suggested campaign and not leave it to others to do so.

Yours faithfully,
Arnold S. Leese.

20, Pewley Hill,
Guildford.
July 12th, 1943.